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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/756,802	01/13/2004	Cynthia C. Bamdad	M1015.70070US01	1525

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EXAMINER	
FORMAN, BETTY J	

ART UNIT	PAPER NUMBER
1634	

NOTIFICATION DATE	DELIVERY MODE
05/09/2011	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

uspto@jhkiplaw.com

Office Action Summary	Application No.	Applicant(s)	
	10/756,802	BAMDAD ET AL.	
	Examiner	Art Unit	
	Betty Forman	1634	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 April 2011*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,119,120,122,124,125,127-129,131-134 and 136-153* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,119,120,122,124,125,127-129,131-134 and 136-153* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 5 April 2011 has been entered.

Status of the Claims

2. This action is in response to papers filed 5 April 2011 in which claims 1, 119-120, 122, 129, 132 and 136-140 were amended, claims 121 and 135 were canceled and claims 144-153 were added. All of the amendments have been thoroughly reviewed and entered.

The previous rejections in the Office Action dated5 April 2010 are withdrawn in view of the amendments.

Applicant’s arguments have been thoroughly reviewed but are deemed moot in view of the amendments, withdrawn rejections and new grounds for rejection.

New grounds for rejection are discussed.

Claims 1, 119, 120, 122, 124, 125, 127-129, 131-134 and 136-153 are under prosecution.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 132, 127, 129, 131, 134, 138-143, 149-153 are claims depending from Claim 132 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 132, 127, 129, 131, 134, 138-143, 149-153 are indefinite in Claim 132, line 12 for the recitation “the determining step”. The recitation is indefinite because the claim contains steps of determining. Therefore it is unclear which step of determining is being further defined.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1, 119, 120, 124, 125, 127-129, 131-134 and 136-153 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sigal et al (U.S. Patent No. 6,319,670, filed 23 December 1997), Burmer (WO 99/45149, published 10 September 1999, IDS of 2/10) and/or Still et al (U.S. Patent No. 5,565,324, issued 15 October 1996)

Regarding Claims 1, 129 and 132, Sigal teaches a method comprising immobilizing a protein and an identifier on a common colloid particle (Abstract). Sigal teaches the protein is immobilized to the surface of a nanoparticle coated with a functionalized layer e.g. self-assembled monolayer (Column 8, lines 8-21) and wherein the nanoparticle is less than 500 nm (Column 5, lines 35-38). Sigal further teaches that coating the nanoparticle with functionalized monolayer "is a well-known method of preventing particle aggregation" (Column 6, lines 41-53). Sigal teaches the method wherein the immobilized protein is allowed to interact with an immobilized binding partner for subsequent identification via the identifier on the nanoparticle (Column 10, line 30-Column 11, line 12).

Regarding Claim 119-120 and 138-139, Sigal teaches the particles are gold (Column 4, lines 52-56).

Regarding Claim 127, Sigal teaches the first and second surfaces are particles (paragraph spanning columns 14-15).

Regarding Claims 144-153, Sigal teaches the nanoparticle ranges (Column 5, lines 32-38).

Sigal teaches the method wherein the particle has an immobilized identifier but the reference does not teach an oligonucleotide identifier.

However, oligo-tags were well-known and routinely practiced in the art at the time the invention was made as taught by Burmer and Still

Burmer teaches a similar immobilizing a protein and oligo tag (i.e. encoding sequence) onto a bead (paragraph spanning pages 4-5 and page 16, last paragraph),

allowing the biomolecule to interact with it's target and detecting the interaction by detecting the tag (paragraph spanning pages 16-17). Burmer teaches the interaction is detected by amplifying the encoding sequence and/or tag (page 17, lines 6-8) using fluorescence, sequencing, hybridization and/or amplification (page 21, lines 16-17) but the reference does not teach separating the identifier prior to detecting.

Still also teaches a method for detecting a target binding event by detecting a co-immobilized encoded tag (Abstract). Still further teaches that the tags are detachable thereby allowing the identification of reaction events at picomolar or lower concentration, wherein the detachable tags are amenable to rapid analysis by a variety of sampling systems (Column 5, line 57-Column 6, line 58).

It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to apply the oligo tags of Still and/or Burmer to the particles of Sigal. One of ordinary skill in the art would have been motivated to do so for the expected benefit of rapid analysis of biomolecule binding events at very low concentrations as desired in the art (Still, Column 5, line 57-Column 6, line 58).

Still and Burmer do not teach the proteins are immobilized to the surface of the particle via a self-assembled monolayer. However, Sigal teaches the similar method wherein the particles are coated with a functionalized monolayer. Sigal further teaches that it was well-known in the art that the monolayer prevents particle aggregation (Column 6, lines 38-60).

It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to apply the monolayer of Sigal to the particles of Still

and/or Burmer. One of ordinary skill would have been motivated to do so with a reasonable expectation of success based on the well-known technique as taught by Sigal. The artisan would have been further motivated to do so for benefit of preventing aggregation which is a well-known desired property as taught by Sigal (Column 6, lines 38-60).

7. Claims 122 and 140 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sigal et al (U.S. Patent No. 6,319,670, filed 23 December 1997), Burmer (WO 99/45149, published 10 September 1999, IDS of 2/10) and/or Still et al (U.S. Patent No. 5,565,324, issued 15 October 1996) as applied to Claims 1 and 132 above and further in view of Bamdad (WO 98/31839, published 23 July 1998).

Regarding Claims 122 and 140, Sigal teaches the protein is attached to a functional group of the SAM but the reference does not teach the claimed metal binding tag. However, the claimed beads and surface properties were well known in the art at the time the invention was made as taught by Bamdad.

Bamdad teaches a similar method comprising providing a target molecule and oligo tag, each immobilized on a common surface and allowing the target to participate in a reaction and determining participation by identifying the oligo tag on the surface (paragraph spanning pages 37-38) wherein the preferred supports are gold and have a self-assembled monolayer whereby the biological molecules are immobilized via a metal binding tag-metal-chelate linkage (pages 6-9). Bamdad teaches the supports

provide for the detection of a conformation change in single molecules and is inexpensive, easily scalable and therefore useful for mass screenings (page 64, lines 9-28).

It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to apply the self-assembled monolayer and metal binding tag-metal-chelate linkage taught by Bamdad to the particles of Sigal and/or Burmer and/or Still. One of ordinary skill in the art would have been motivated to do so with a reasonable expectation of success and for the benefit of an inexpensive means for mass detection of conformational changes at the single molecule level as taught by Bamdad (page 64, lines 9-28).

Conclusion

No claim is allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Betty Forman whose telephone number is (571)272-0741. The examiner can normally be reached on 6:00 TO 3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dave Nguyen can be reached on (571) 272-0731. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Betty Forman
Primary Examiner
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